

FCC Test Report

Equipment : 7" Rugged Tablet Computer
Brand Name : AAEON
Model Name : xxxRTC-700C-TAy-WBGzxxx-xxxx
1. xxx=TF-(TF: Toxic Free) or blank
2. y is for Touch version , ex: A=rev1, x:A~Z
3. z is blank or H, blank means without 3G function; H means with 3G function
4. xxx is for marketing purpose
5. xxxx=SW revision, ex: 1110=rev1, x:0~9
FCC ID : OHBRTC700CWBGB
Standard : 47 CFR FCC Part 15.225
Operating Band : 13.110 – 14.010 MHz (channel freq. 13.56 MHz)
FCC Classification : DXX
Applicant : AAEON Technology Inc.
Manufacturer : 5F, No. 135, Lane 235, Pao Chiao Rd.,
Hsin-Tien Dist., New Taipei City,
Taiwan, R.O.C

The product sample received on Jul. 14, 2014 and completely tested on Aug. 11, 2014. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

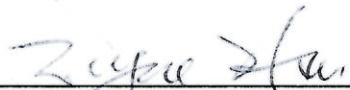

Wayne Hsu / Assistant Manager



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APPENDIX A. TEST PHOTOS

APPENDIX B. PHOTOGRAPHS OF EUT

Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.187385MHz 39.51 (Margin 14.64dB) - AV 51.10 (Margin 13.05dB) - QP	FCC 15.207	Complied
3.2	15.215(c)	Emission Bandwidth	20dB Bandwidth 2.74 [kHz] FL: 13.55952 MHz FH: 13.56226 MHz	Fall in band $F_L \geq 13.553 \text{ MHz}$ $F_H \leq 13.567 \text{ MHz}$	Complied
3.3	15.225(a)~(d)	Field Strength of Fundamental Emissions and Spectrum Mask	Fundamental Emissions peak:55.59 dBuV/m at 3m Device complies with spectrum mask – refer to test data	124 dBuV/m at 3	Complied
3.4	15.225(d)	Transmitter Radiated Unwanted Emissions	[dBuV/m at 3m]: 40.67MHz 33.73 (Margin 6.27dB) - Peak	FCC 15.209	Complied
3.5	15.225(e)	Frequency Stability	72.27 ppm	$\pm 0.01\%$ (100ppm)	Complied



SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-327-0973

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range	Modulation	Ch. Frequency (MHz)	Channel Number	Field Strength (dBuV/m)
13.110 – 14.010 MHz	ISO 14443-2 (ASK)	13.56	1	55.59
Note 1: Field strength performed peak level at 3m.				

1.1.2 Antenna Information

Antenna Category	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
☐	External antenna (dedicated antennas)

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	☒ Production ; ☐ Pre-Production ; ☐ Prototype
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.:
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.:
☐	Other:

1.1.4 Test Signal Duty Cycle

Duty Cycle Operation Restriction			
The transmitter is used for		The transmitter is operated	
☒	Inductive applications	☒	Automatically triggered
☐	Duty cycle fixed mode	☒	Duty cycle random mode
Duty cycle mode - ISO 14443 Type A			
Declare transmitter duty cycle / 1 hour =		100%	
Duty cycle Limit			
☐	Class 1 - < 0.1 %	☐	Class 2 - < 1.0 %
☐	Class 3 - < 10 %	☒	Class 4 - Up to 100 %
Duty cycle mode - ISO 14443 Type B			
Declare transmitter duty cycle / 1 hour =		100%	
Duty cycle Limit			
☐	Class 1 - < 0.1 %	☐	Class 2 - < 1.0 %
☐	Class 3 - < 10 %	☒	Class 4 - Up to 100 %
Duty cycle mode - NFC-F			
Declare transmitter duty cycle / 1 hour =		100%	
Duty cycle Limit			
☐	Class 1 - < 0.1 %	☐	Class 2 - < 1.0 %
☐	Class 3 - < 10 %	☒	Class 4 - Up to 100 %
Remark: Type F was the worst case and it was recorded in this report.			

Operated Mode for Worst Duty Cycle	
☒ Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Voltage Duty Factor [dB] – (20 log 1/x)
☒ 100%	0

1.1.5 EUT Operational Condition

Supply Voltage	☒ AC mains	☒ DC	☐ System
Type of DC Source	☐ Internal DC supply	☒ From adapter	☒ Battery

1.2 Accessories

Accessories				
AC Adapter	Brand Name	LTE	Model Name	LTE24E-S2-2
	Power Rating	I/P: 100-240V $\overline{\sim}$ 1A ; O/P: 12V $\overline{\sim}$ 2A		
	DC Power Cable	1.8 meter, non-shielded cable, without ferrite core		
Battery	Brand Name	JHT	Model Name	J1067
	Power Rating	7.4 Vdc, 3700 mAh	Type	Li-ion
LCD Panel	Brand Name	CHIMEI	Model Name	N070ICG-LD1

Reminder: Regarding to more detail and other information, please refer to user manual.

1.3 Support Equipment

Support Equipment - AC Conduction & Radiated Emission			
No.	Equipment	Brand Name	Model Name
1	Identity Badge	-	-

1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2009
- ◆ FCC KDB 174176

1.5 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment
AC Conduction	CO04-HY	Zeus	25°C / 46%
RF Conducted	TH01-HY	Howard	24°C / 63%
Radiated Emission	03CH02-HY	Hunter	24.6°C / 60%

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Uncertainty		
Test Item		Uncertainty
AC power-line conducted emissions		±2.2 dB
Emission bandwidth		±1.4 %
Unwanted emissions, conducted	9 – 150 kHz	±0.3 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.5 dB
All emissions, radiated	9 – 150 kHz	±2.4 dB
	0.15 – 30 MHz	±2.2 dB
	30 – 1000 MHz	±2.5 dB
Temperature		±0.8 °C
Humidity		±3 %
DC and low frequency voltages		±3 %
Time		±1.4 %
Duty Cycle		±1.4 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Modulation Used for Conformance Testing	
Modulation Mode	Field Strength (dBuV/m at 3 m)
NFC-Read/Write	55.59

2.2 Test Channel Frequencies Configuration

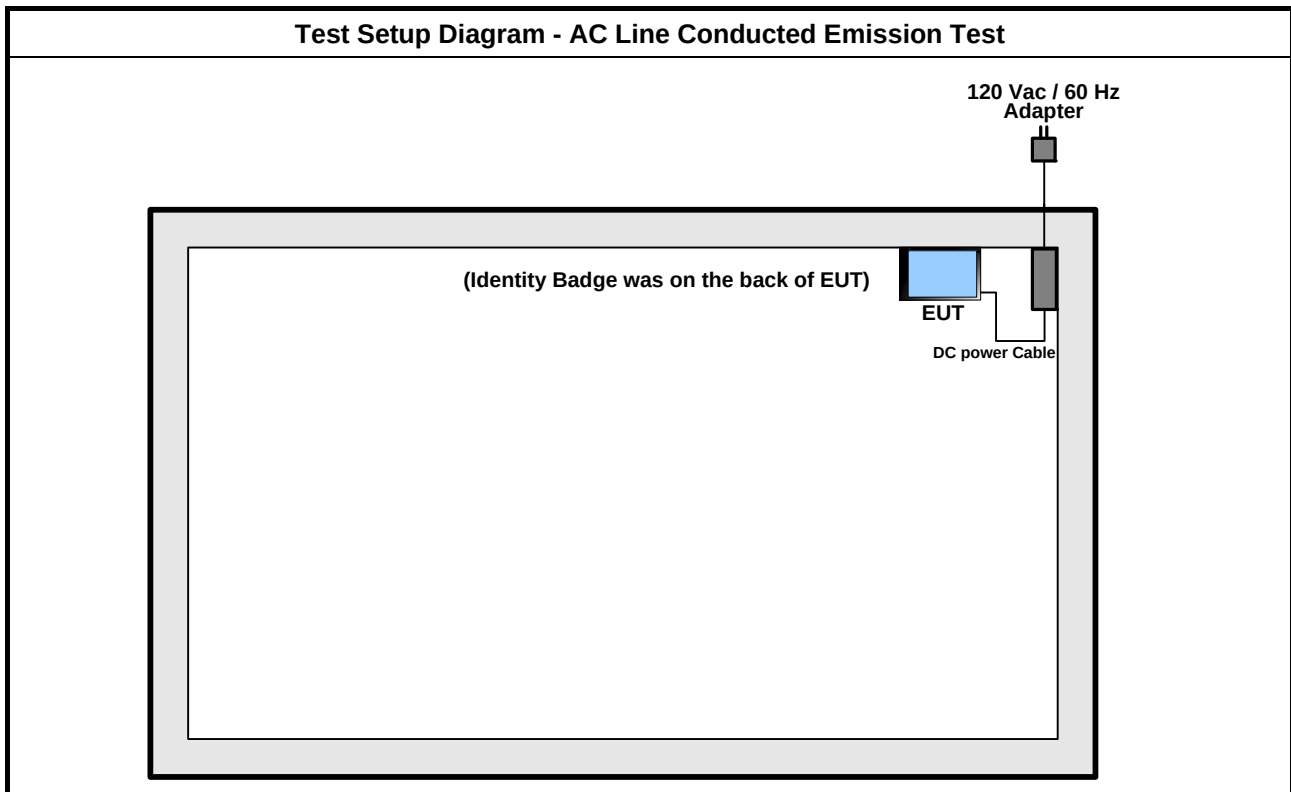
Test Channel Frequencies Configuration	
Modulation Mode	Test Channel Frequencies (MHz) – FX (Frequencies Abbreviations)
NFC-Read/Write	13.56-(F1)

2.3 The Worst Case Measurement Configuration

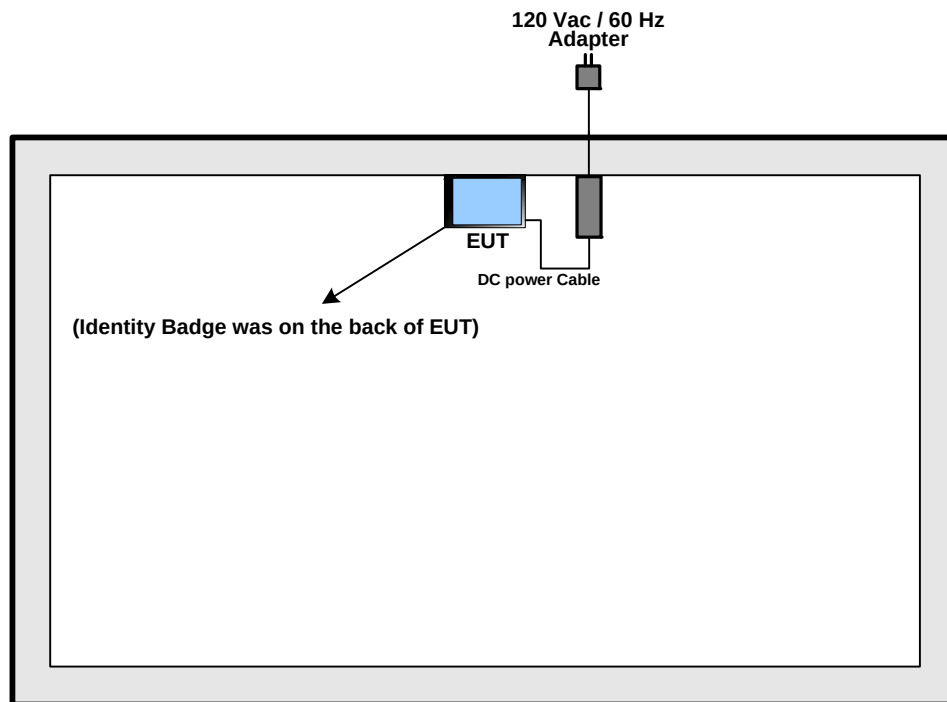
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	EUT with adapter & transmitting

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Field Strength of Fundamental Emissions Spectrum Mask, Transmitter Radiated Unwanted Emissions Frequency Stability		
Test Condition	Radiated measurement		
User Position	☐ EUT will be placed in fixed position.		
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes.		
	☒ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes. The worst plane is Y.		
Operating Mode	Operating Mode Description		
1	EUT with adapter & transmitting		
Remark	NFC Type A, B, F were all evaluated here. Type F was the worst case so it was recorded in this report.		
Modulation Mode	NFC-Read/Write		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

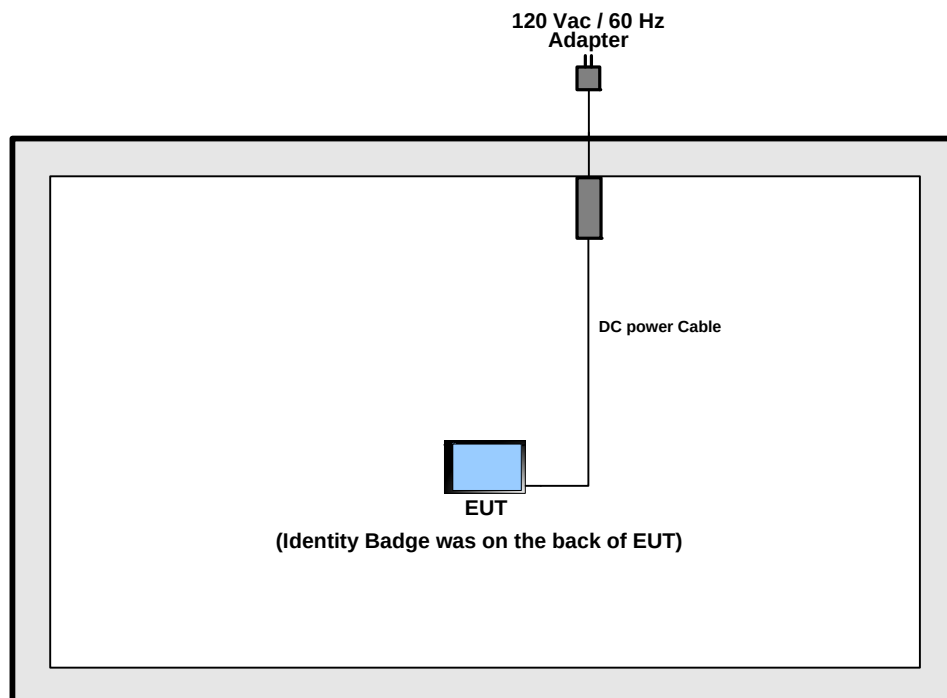
2.4 Test Setup Diagram



Test Setup Diagram - Radiated Below 30MHz Test



Test Setup Diagram - Radiated Above 30MHz Test



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

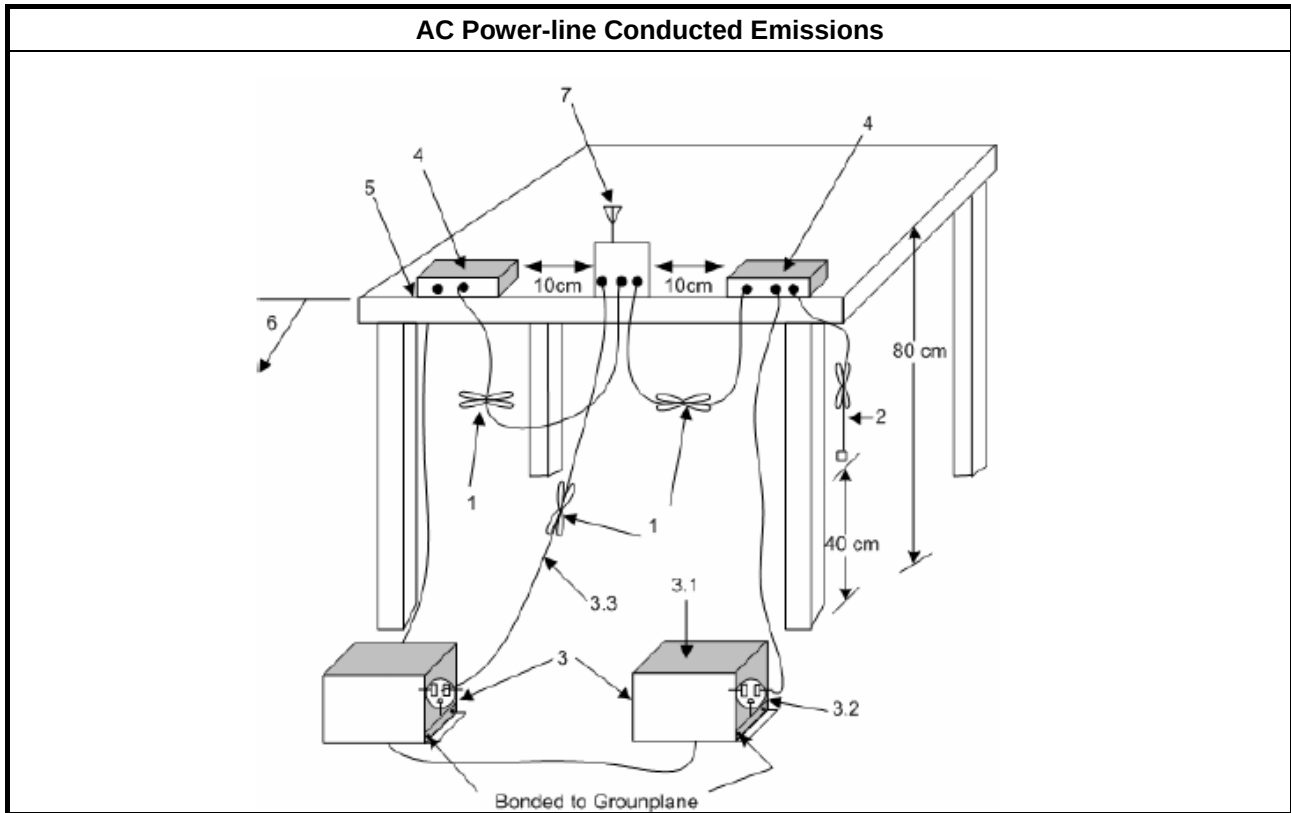
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

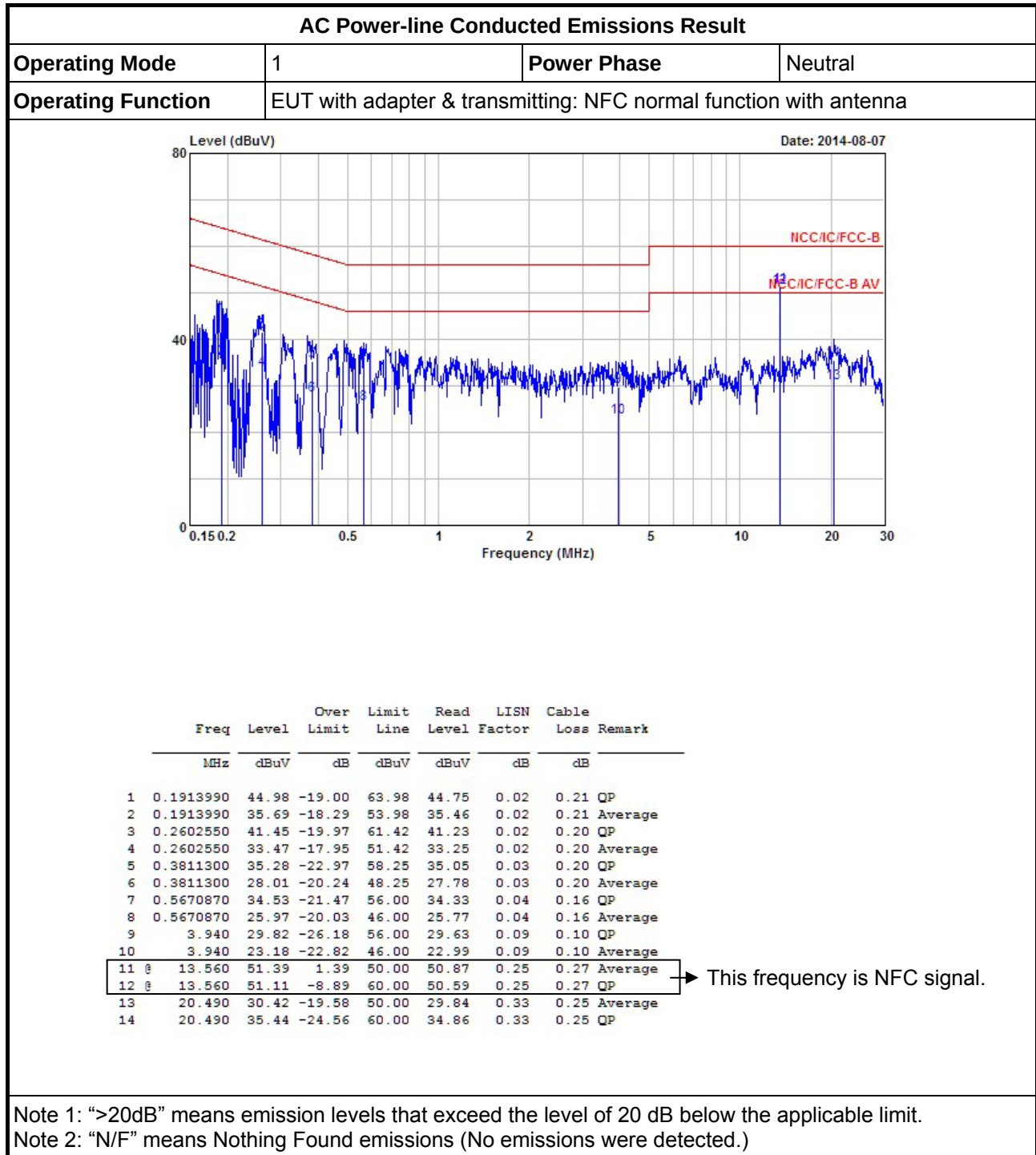
3.1.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.
☒	If AC conducted emissions fall in operating band, then following below test method confirm final result.
☐	Accept measurements done with a suitable dummy load replacing the antenna under the following conditions: (1) Perform the AC line conducted tests with the antenna connected to determine compliance with FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load to determine compliance with FCC 15.207 limits within the transmitter's fundamental emission band.
☒	For a device with a permanent antenna operating at or below 30 MHz, accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) Perform the AC line conducted tests with the permanent antenna to determine compliance with the FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load in lieu of the permanent antenna to determine compliance with the FCC 15.207 limits within the transmitter's fundamental emission band.

3.1.4 Test Setup

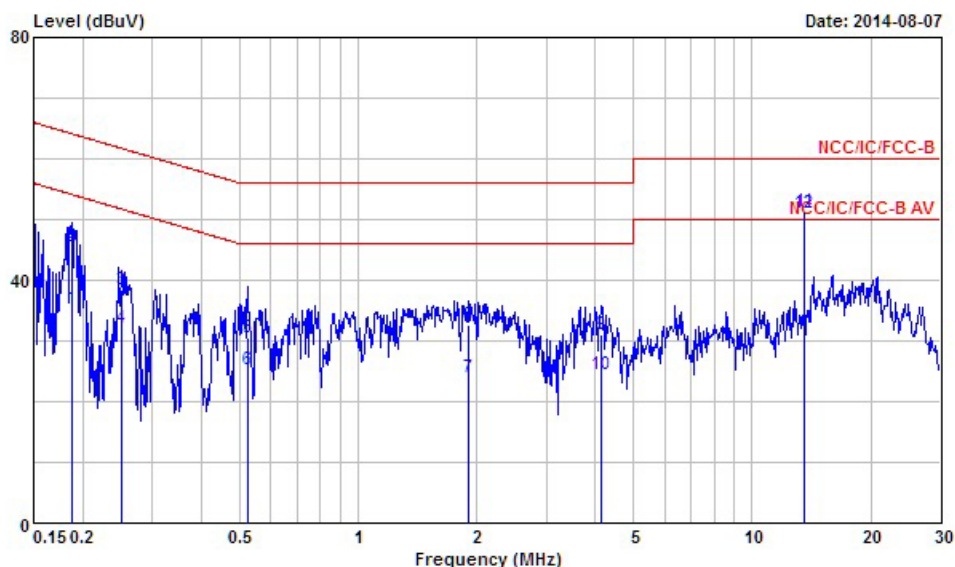


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	EUT with adapter & transmitting: NFC normal function with antenna		



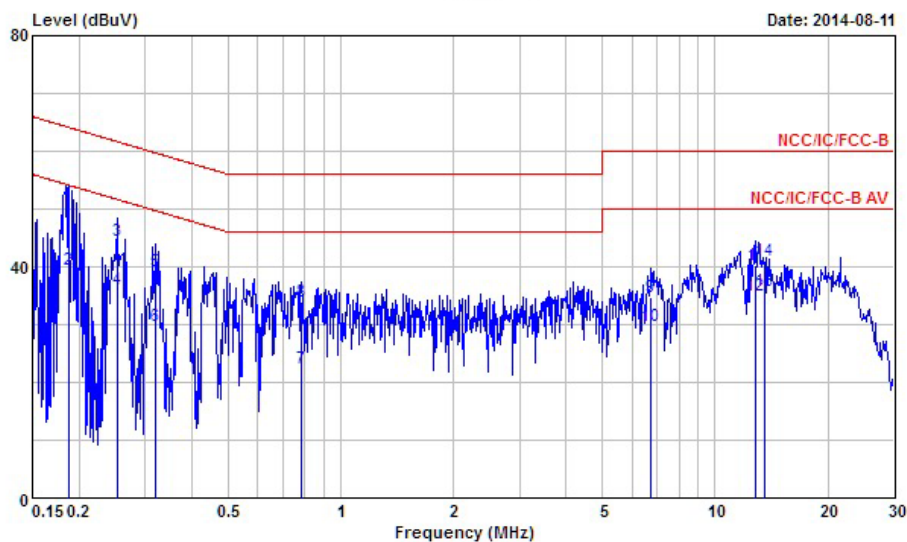
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1873850	35.39	-18.76	54.15	35.15	0.03	0.21	Average
2	0.1873850	45.62	-18.53	64.15	45.38	0.03	0.21	QP
3	0.2507790	38.39	-23.34	61.73	38.16	0.03	0.20	QP
4	0.2507790	32.07	-19.66	51.73	31.84	0.03	0.20	Average
5	0.5237620	30.46	-25.54	56.00	30.25	0.04	0.17	QP
6	0.5237620	25.18	-20.82	46.00	24.97	0.04	0.17	Average
7	1.900	23.97	-22.03	46.00	23.61	0.07	0.29	Average
8	1.900	32.60	-23.40	56.00	32.24	0.07	0.29	QP
9	4.140	31.13	-24.87	56.00	30.93	0.10	0.10	QP
10	4.140	24.43	-21.57	46.00	24.23	0.10	0.10	Average
11	13.560	51.21	-8.79	60.00	50.70	0.24	0.27	QP
12	13.560	51.05	1.05	50.00	50.54	0.24	0.27	Average

→ This frequency is NFC signal.

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	EUT with adapter & transmitting: the NFC is normal function with antenna terminal		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1873850	51.10	-13.05	64.15	50.87	0.02	0.21	QP
2	0.1873850	39.51	-14.64	54.15	39.28	0.02	0.21	Average
3	0.2521110	44.48	-17.21	61.69	44.26	0.02	0.20	QP
4	0.2521110	36.06	-15.63	51.69	35.84	0.02	0.20	Average
5	0.3199920	39.21	-20.50	59.71	38.98	0.03	0.20	QP
6	0.3199920	29.61	-20.10	49.71	29.38	0.03	0.20	Average
7	0.7834520	22.26	-23.74	46.00	22.09	0.04	0.13	Average
8	0.7834520	33.96	-22.04	56.00	33.79	0.04	0.13	QP
9	6.730	34.81	-25.19	60.00	34.50	0.15	0.16	QP
10	6.730	29.78	-20.22	50.00	29.47	0.15	0.16	Average
11	12.850	40.37	-19.63	60.00	39.87	0.24	0.26	QP
12	12.850	34.91	-15.09	50.00	34.41	0.24	0.26	Average
13	13.560	35.75	-14.25	50.00	35.23	0.25	0.27	Average
14	13.560	41.10	-18.90	60.00	40.58	0.25	0.27	QP

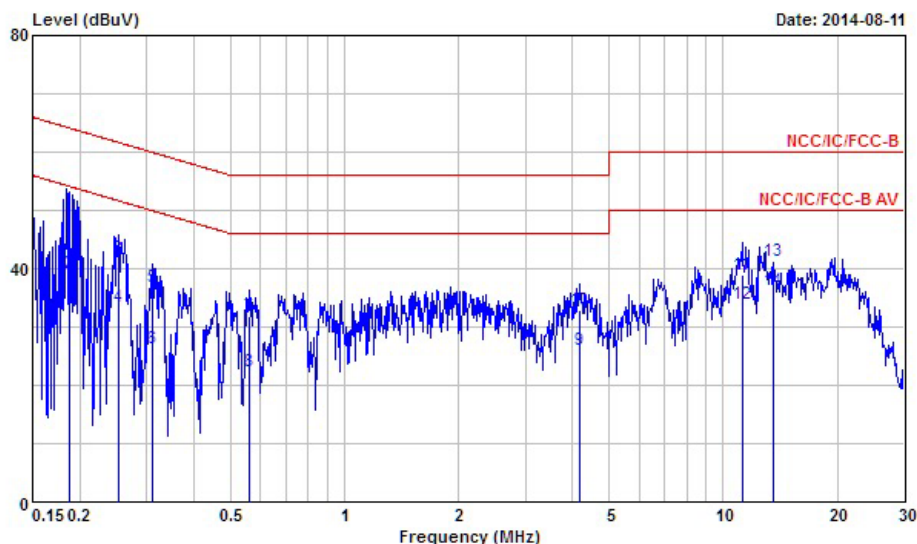
→ This frequency is NFC signal.

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	EUT with adapter & transmitting: the NFC is normal function with antenna terminal		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1883800	50.38	-13.73	64.11	50.14	0.03	0.21	QP
2	0.1883800	39.12	-14.99	54.11	38.88	0.03	0.21	Average
3	0.2521110	41.87	-19.82	61.69	41.64	0.03	0.20	QP
4	0.2521110	33.43	-18.26	51.69	33.20	0.03	0.20	Average
5	0.3099790	36.89	-23.08	59.97	36.66	0.03	0.20	QP
6	0.3099790	26.41	-23.56	49.97	26.18	0.03	0.20	Average
7	0.5611100	31.86	-24.14	56.00	31.66	0.04	0.16	QP
8	0.5611100	22.38	-23.62	46.00	22.18	0.04	0.16	Average
9	4.160	25.93	-20.07	46.00	25.73	0.10	0.10	Average
10	4.160	32.97	-23.03	56.00	32.77	0.10	0.10	QP
11	11.200	39.07	-20.93	60.00	38.63	0.21	0.23	QP
12	11.200	33.96	-16.04	50.00	33.52	0.21	0.23	Average
13	13.560	41.42	-18.58	60.00	40.91	0.24	0.27	QP
14	13.560	36.36	-13.64	50.00	35.85	0.24	0.27	Average

→ This frequency is NFC signal.

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

20dB Bandwidth Limit

- ☒ Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band (13.110 – 14.010 MHz).

3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

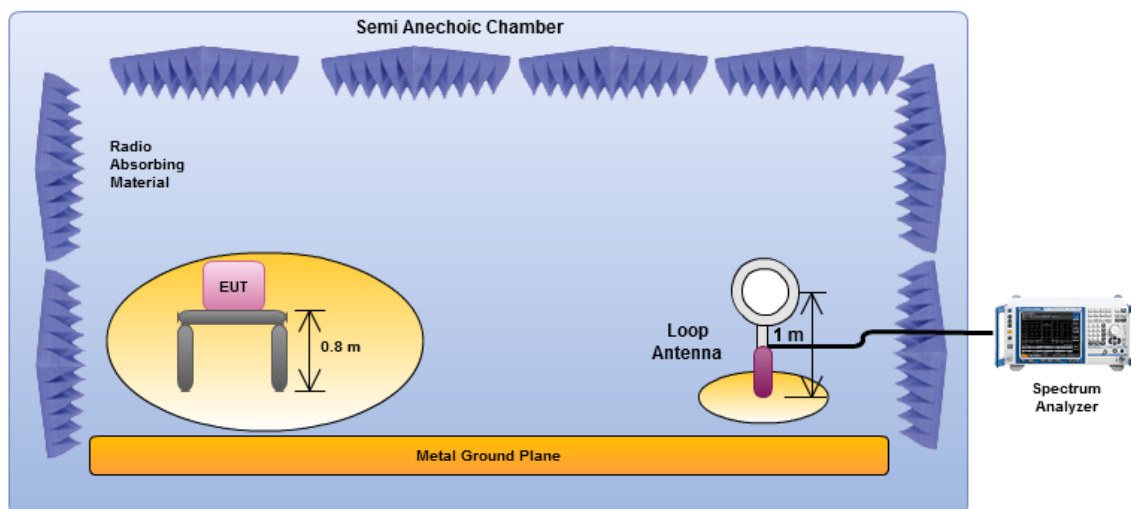
3.2.3 Test Procedures

Test Method

- ☒ For the emission bandwidth refer ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
- ☒ For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

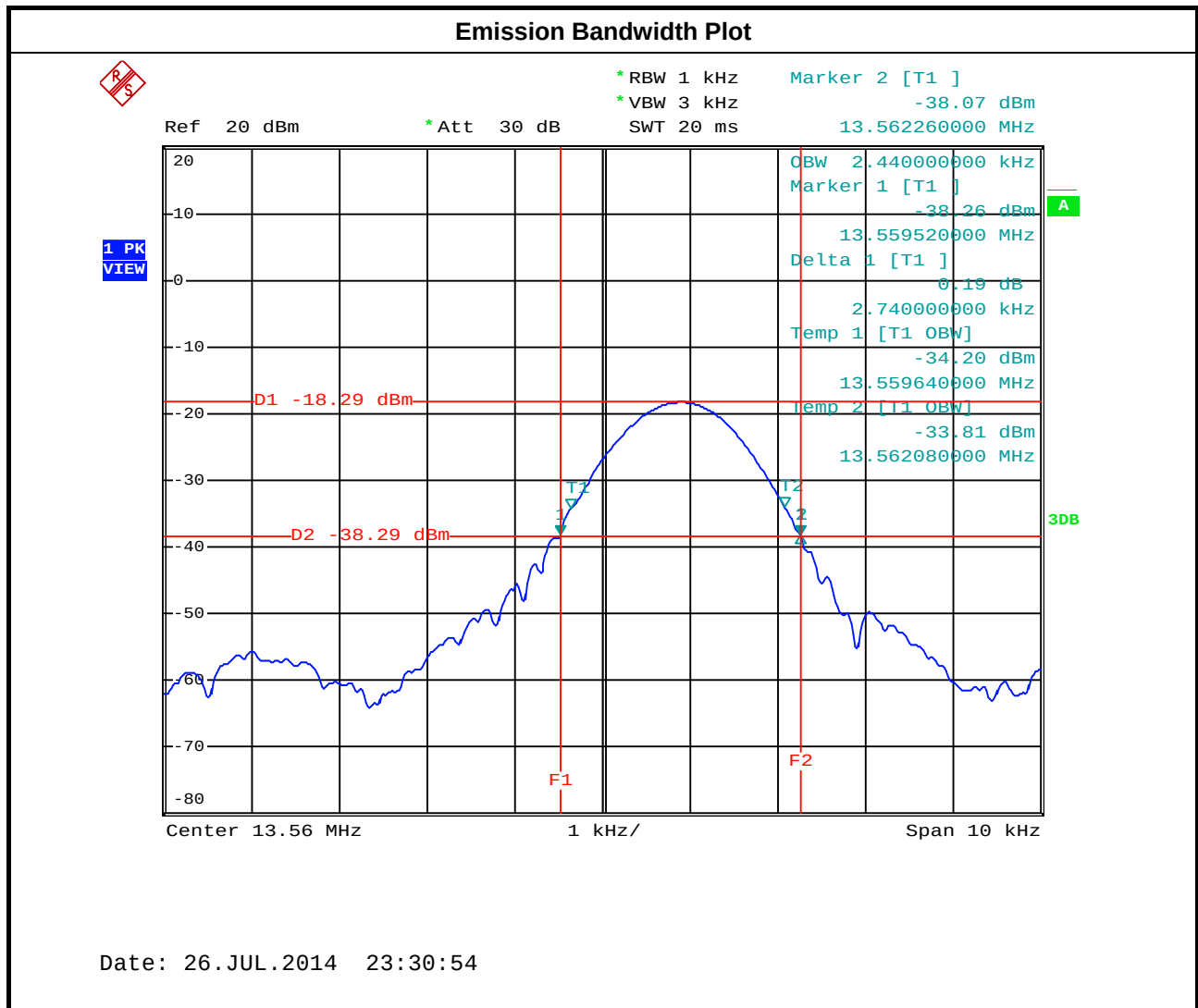
3.2.4 Test Setup

Emission Bandwidth



3.2.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result					
Modulation Mode	Frequency (MHz)	20dB Bandwidth (kHz)	F _L at 20dB BW (MHz)	F _H at 20dB BW (MHz)	99% Bandwidth (kHz)
NFC-Read/Write	13.56	2.74000	13.55952	13.56226	2.44000
Limit		N/A	13.110	14.010	N/A
Result		Complied			



3.3 Field Strength of Fundamental Emissions and Spectrum Mask

3.3.1 Field Strength of Fundamental Emissions and Spectrum Mask Limit

Field Strength of Fundamental Emissions					
Emissions	(uV/m)@30m	(dBuV/m)@30m	(dBuV/m)@10m	(dBuV/m)@3m	(dBuV/m)@1m
Fundamental	15848	84.0	103.1	124.0	143.1
Quasi peak measurement of the fundamental.					

Spectrum Mask					
Freq. of Emission (MHz)	(uV/m)@30m	(dBuV/m)@30m	(dBuV/m)@10m	(dBuV/m)@3m	(dBuV/m)@1m
1.705~13.110	30	29.5	48.6	69.5	88.6
13.110~13.410	106	40.5	59.6	80.5	99.6
13.410~13.553	334	50.5	69.6	90.5	109.6
13.553~13.567	15848	84.0	103.1	124.0	143.1
13.567~13.710	334	50.5	69.6	90.5	109.6
13.710~14.010	106	40.5	59.6	80.5	99.6
14.010~30.000	30	29.5	48.6	69.5	88.6

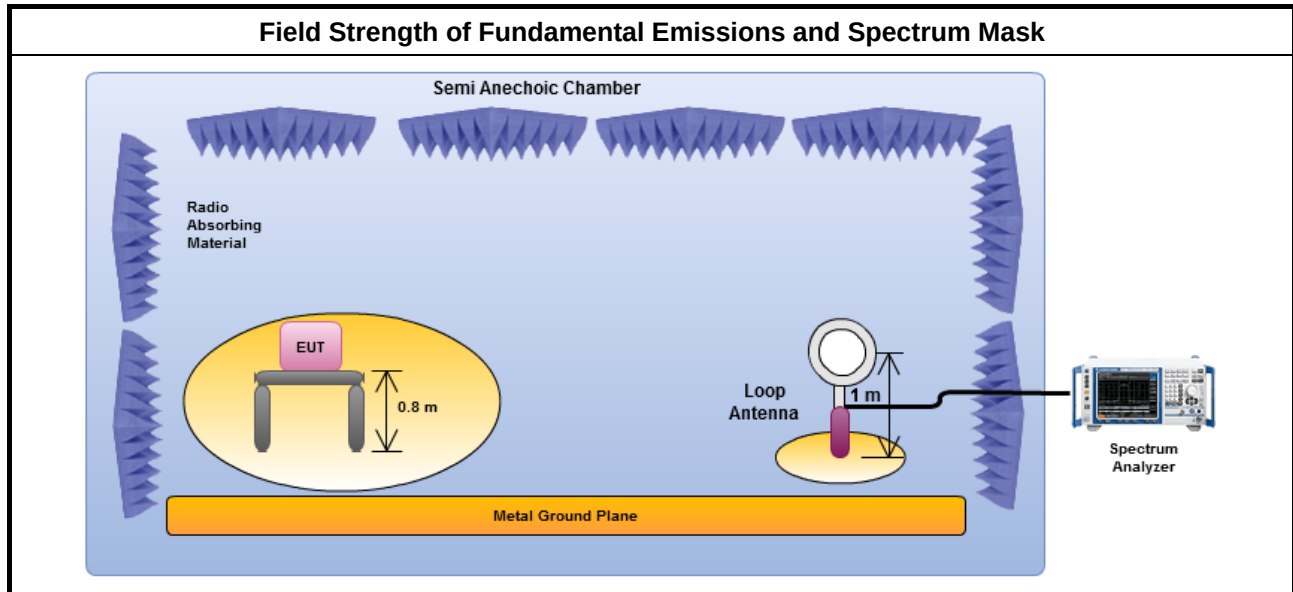
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

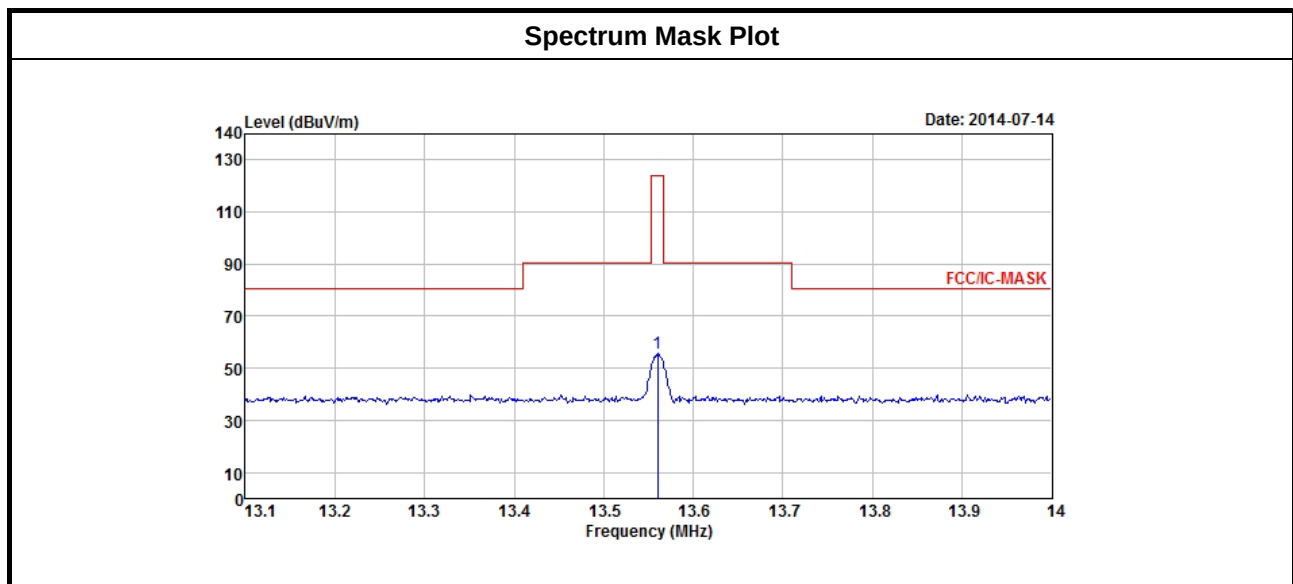
Test Method	
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz and test distance is 3m.
☒	At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the requirements; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be following below methods.
☐	The results shall be extrapolated to the specified distance by making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
☒	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

3.3.4 Test Setup



3.3.5 Test Result of Field Strength of Fundamental Emissions and Spectrum Mask

Field Strength of Fundamental Emissions Result					
Modulation Mode	Frequency (MHz)	Fundamental (dBuV/m)@3m	Polarization	Margin (dB)	Limit (dBuV/m)@3m
NFC-Read/Write	13.56	55.59	H	68.41	124.00
Result		Complied			
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal).					



3.4 Transmitter Radiated Unwanted Emissions

3.4.1 Transmitter Radiated Unwanted Emissions Limit

Transmitter Radiated Unwanted Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

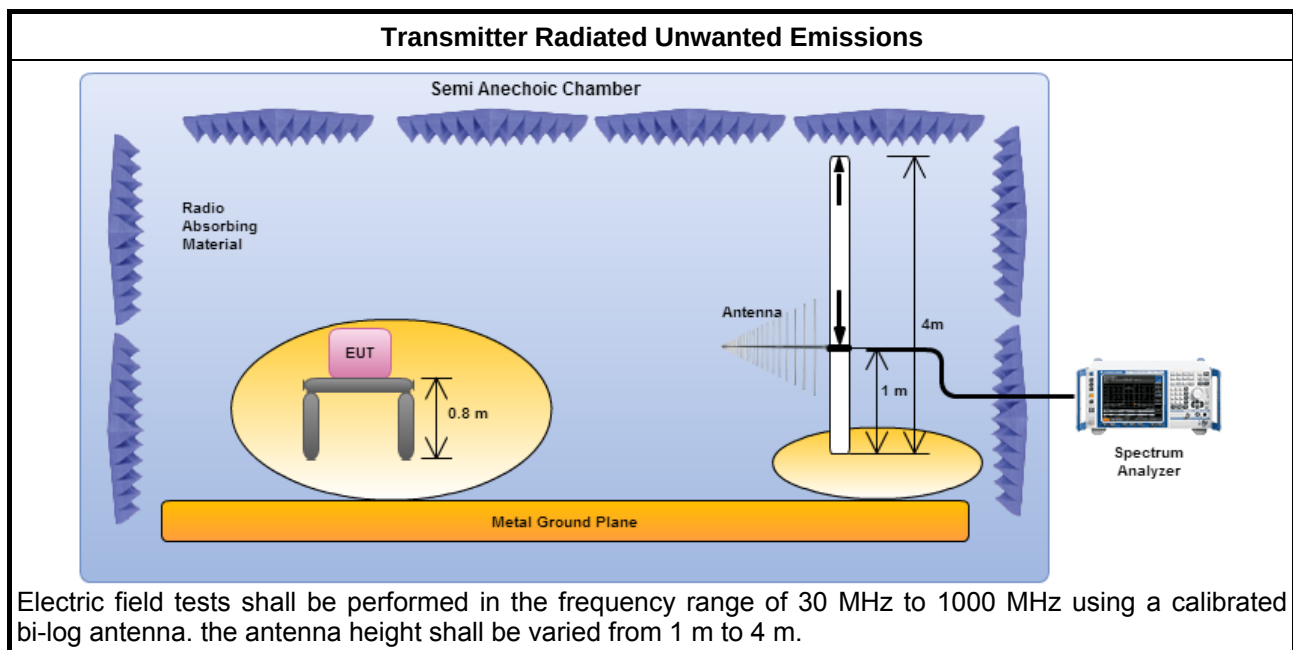
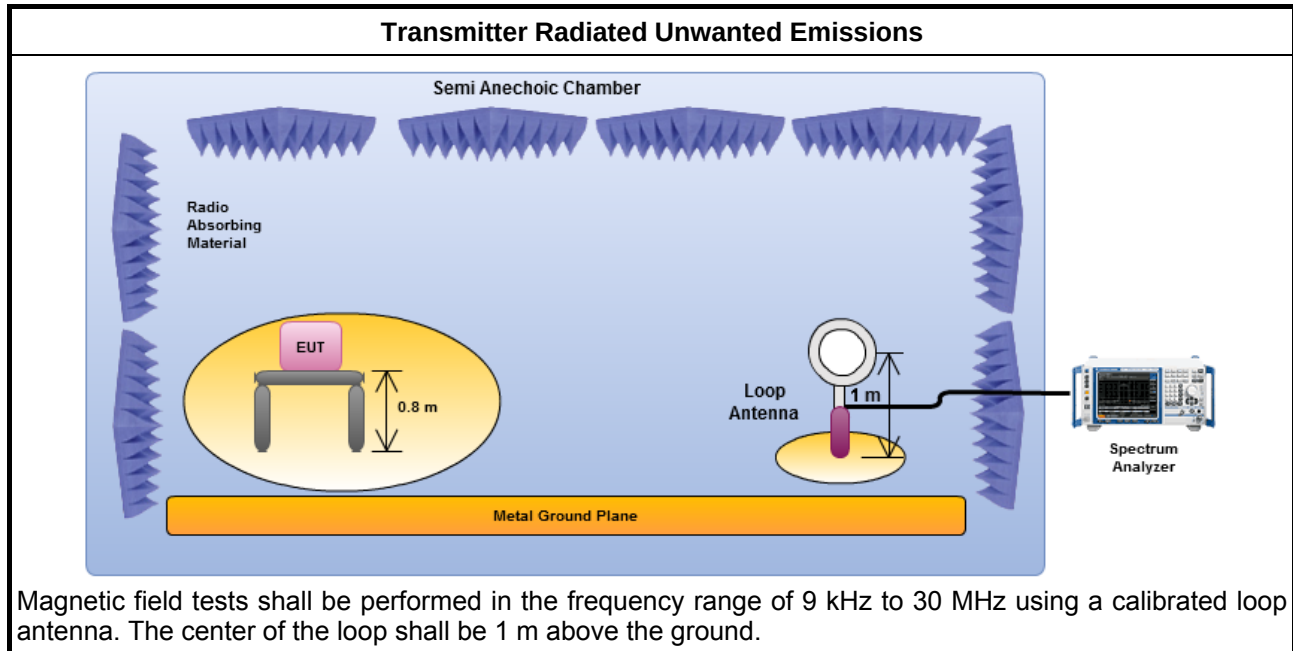
3.4.2 Measuring Instruments

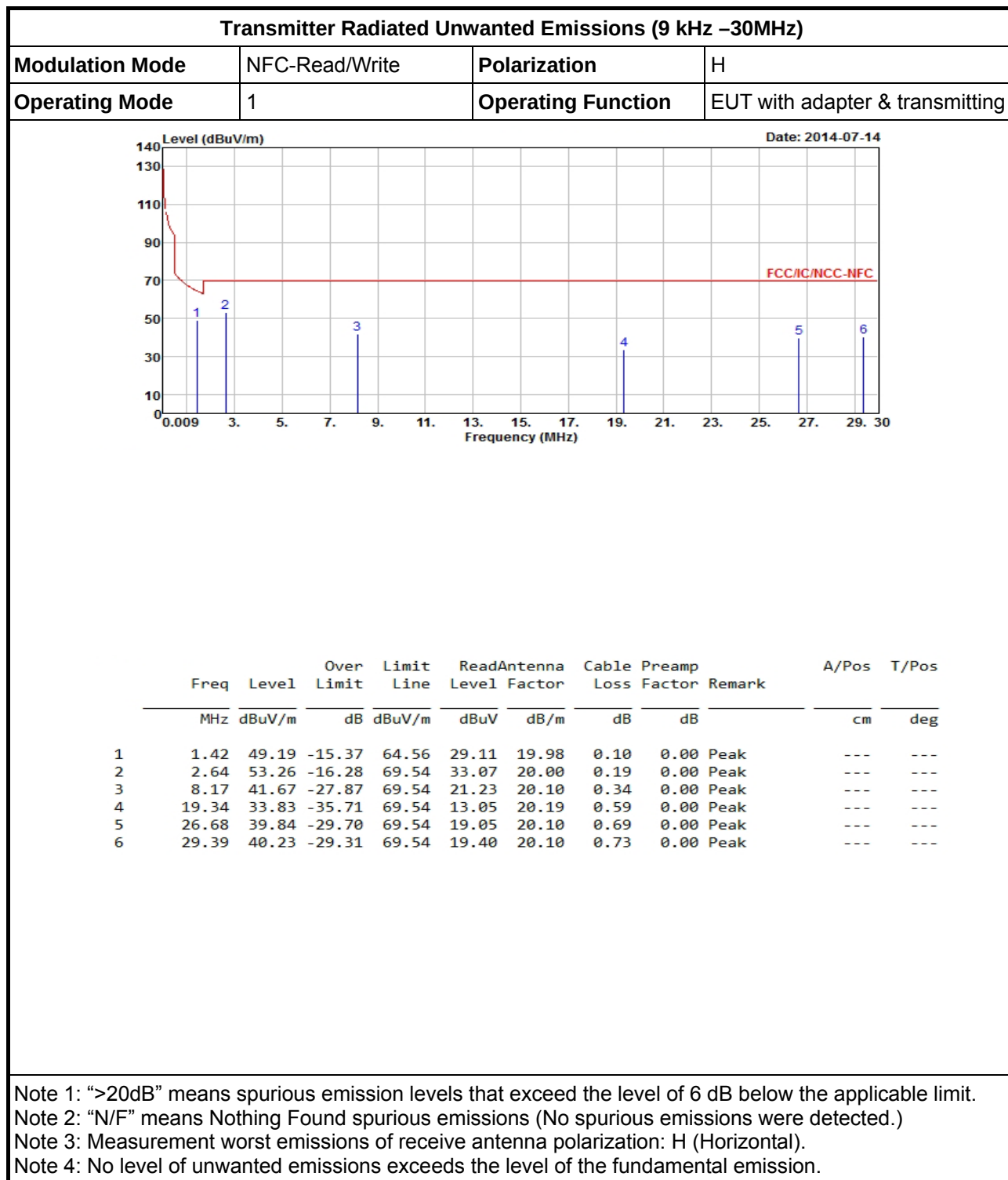
Refer a test equipment and calibration data table in this test report.

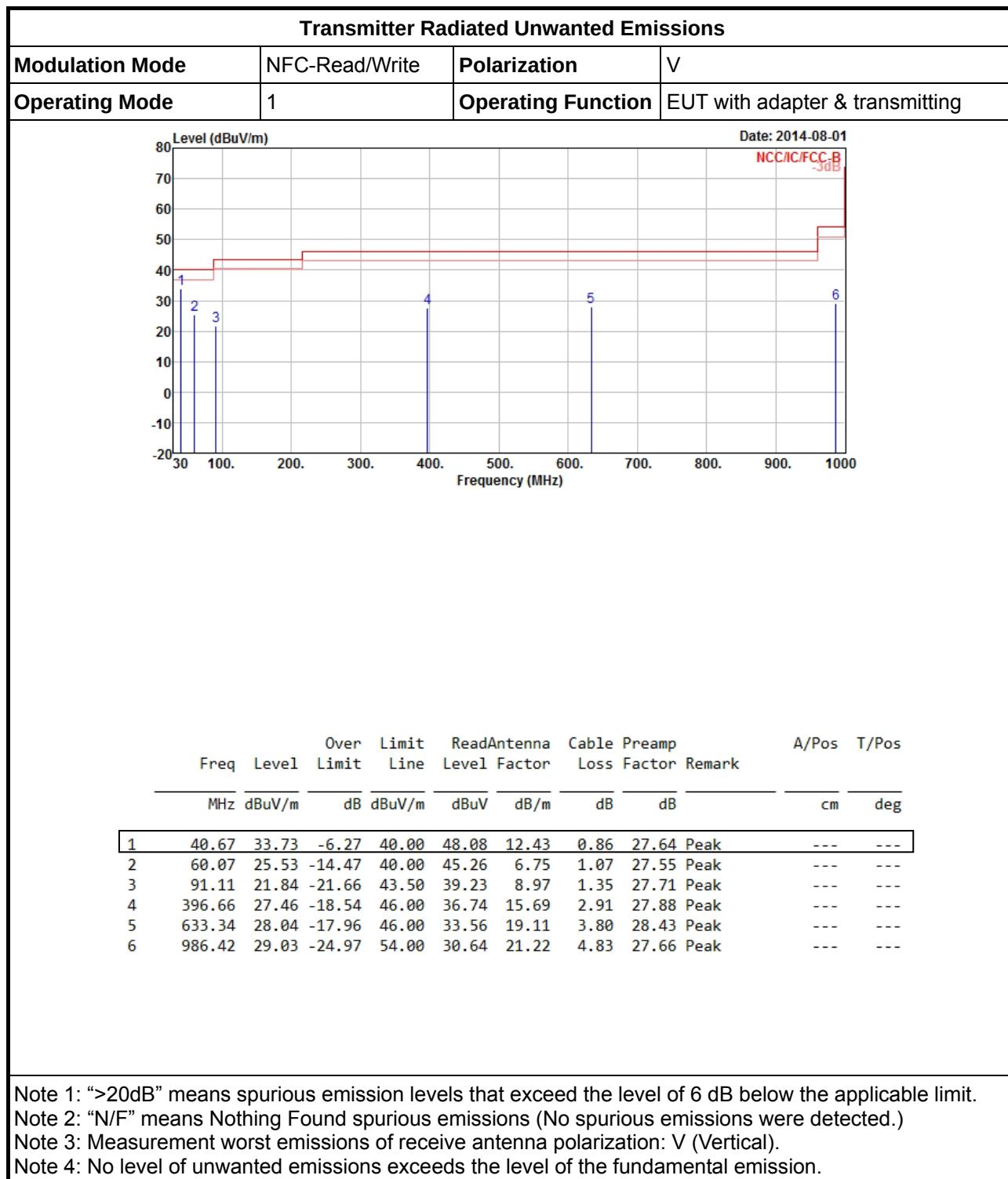
3.4.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz and test distance is 3m.
☒	At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the requirements; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be following below methods.
☐	The results shall be extrapolated to the specified distance by making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
☒	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.
☒	The any unwanted emissions level shall not exceed the fundamental emission level.
☒	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.4.4 Test Setup

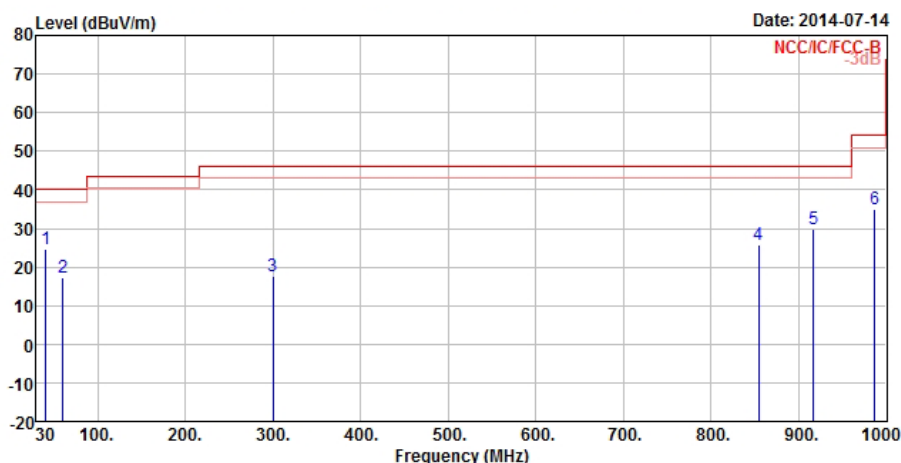


3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)


3.4.6 Transmitter Radiated Unwanted Emissions (Above 30MHz)


Transmitter Radiated Unwanted Emissions

Modulation Mode	NFC-Read/Write	Polarization	H
Operating Mode	1	Operating Function	EUT with adapter & transmitting



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	40.67	24.81	-15.19	40.00	39.16	12.43	0.86	27.64	Peak	---	---
2	60.07	17.26	-22.74	40.00	36.99	6.75	1.07	27.55	Peak	---	---
3	299.66	17.52	-28.48	46.00	28.91	13.25	2.51	27.15	Peak	---	---
4	854.50	25.62	-20.38	46.00	28.64	20.37	4.52	27.91	Peak	---	---
5	916.58	29.68	-16.32	46.00	32.19	20.63	4.61	27.75	Peak	---	---
6	986.42	34.97	-19.03	54.00	36.58	21.22	4.83	27.66	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 6 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement worst emissions of receive antenna polarization: V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

3.5 Frequency Stability

3.5.1 Frequency Stability Limit

Frequency Stability Limit	
☒	Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

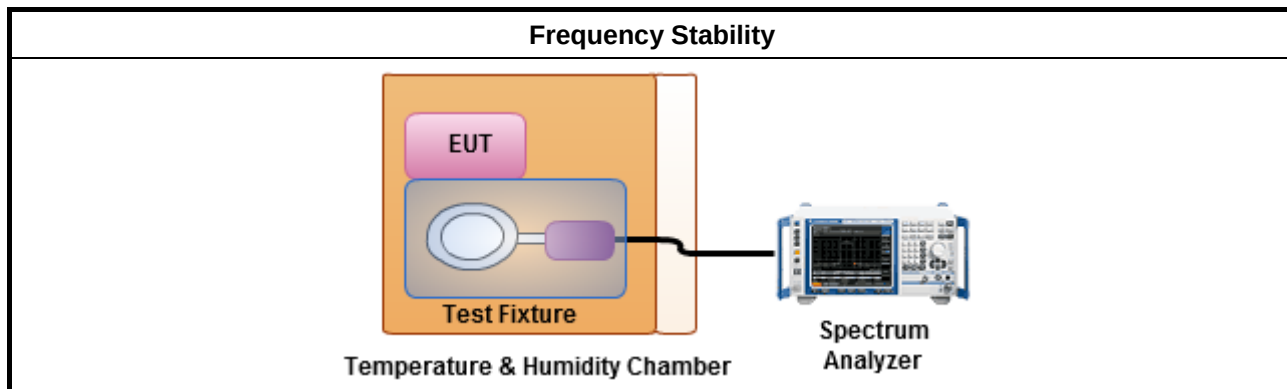
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 6.8 for frequency stability tests
☒	Frequency stability with respect to ambient temperature
☒	Frequency stability when varying supply voltage
☒	For conducted measurement.
☐	For radiated measurement. The equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted power level.

3.5.4 Test Setup



3.5.5 Test Result of Frequency Stability

Test date: Jul. 26, 2014		Frequency Stability Result
Power Level	1	Frequency Stability Max. Deviation Limit < 100 ppm
Condition	Freq. (MHz)	10 min
T _{20°C} V _{max}	13.56088	64.90
T _{20°C} V _{min}	13.56090	66.37
T _{50°C} V _{nom}	13.56080	59.00
T _{40°C} V _{nom}	13.56082	60.47
T _{30°C} V _{nom}	13.56086	63.42
T _{20°C} V _{nom}	13.56090	66.37
T _{10°C} V _{nom}	13.56092	67.85
T _{0°C} V _{nom}	13.56094	69.32
T _{-10°C} V _{nom}	13.56098	72.27
T _{-20°C} V _{nom}	13.56098	72.27
Result		Complied
Note 1: Measure at 85 % [V _{min}] and 115 % [V _{max}] of the nominal voltage [V _{nom}]. The nominal voltage refer test report clause 1.1.5 for EUT operational condition.		

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 26, 2014	AC Conduction
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2014	AC Conduction
RF Cable-CON	HUBER+SUHNER	RG213/U	0-7611832020001	9kHz ~ 30MHz	Oct. 30, 2013	AC Conduction
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	AC Conduction

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum	R&S	FSP40	100004	9kHz ~ 40GHz	Mar. 27, 2014	RF Conducted
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100°C	Nov. 20, 2013	RF Conducted
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 20, 2014	RF Conducted

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Oct. 03, 2013	Radiated Emission
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2014	Radiated Emission
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 09, 2013	Radiated Emission
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 10, 2013	Radiated Emission
Turn Table	Chaintek Instruments	3000	MF7802058	0~ 360 degree	N/A	Radiated Emission
Antenna Mast	MF	MF7802	MF780208205	1 ~ 4 m	N/A	Radiated Emission

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	Dec. 02, 2012	Radiated Emission

Note: Calibration Interval of instruments listed above is two years.